CUHMA ACMHS
Canadian Undersea and Hyperbaric Medical Association
Association Canadienne de Médecine Hyperbare et Subaquatique

E-NEWS

The E-News is the monthly newsletter of CUHMA, the primary outlet to share news/announcements, upcoming events, abstracts of recent publications, job postings, professional perspectives, and images of relevant professional scenes. Submission of applicable content is welcome. New issues are released on the last business day of each month. Past issues are available at https://cuhma.ca. Direct correspondence to info@cuhma.ca.

Neal W. Pollock, PhD
Université Laval

NEWS/ANNOUNCEMENTS

Call for Abstracts – CUHMA VSM 2026

Original research abstracts are invited for the 2026 CUHMA virtual scientific meeting. Any reports or novel case studies or case series relevant to hyperbaric medicine or diving medicine/physiology/safety will be considered. All presentations will be oral (12 min presentations followed by a 3 min question and answer period). The submission deadline is March 01. Decisions will be returned to corresponding authors by March 15. Abstracts should be in standard form: informative title, author list, affiliations list, and 250-word summary (introduction, methods, results, and conclusions). Send abstracts to neal.pollock@kin.ulaval.ca.

UPCOMING EVENTS

Canadian Underwater Conference 2026

The Diver Certification Board of Canada (DCBC) will hold the Canadian Underwater Conference & Exhibition March 24-26 at the Holiday Inn Toronto International Airport hotel. Visit: https://www.underwaterconference.ca.

CUHMA Virtual Scientific Meeting 2026

CUHMA will hold a one-day online conference on Saturday, May 02. The 7.5-hour program will bring together an international panel to present a combination of invited reviews and original research presentations. Registration fees are $100 (regular member), $75 (affiliate member/student registered in an academic program), and $150 (non-member). Updates will be posted: https://cuhma.ca/cgi/page.cgi/annual-scientific-meeting.html.

UMC Introductory Diving Medicine Course

Undersea Medicine Canada will offer a Level 1 'Introductory Course in Diving Medicine - Fitness to Dive' May 11-15 in Halifax, NS. An optional half-day pre-course will be held May 10 for those wanting additional preparation for the program. Upon successful completion of the course, physicians will qualify as CSA Z275.2-15 Level 1 Diving Medical Examiners and can have their names listed with the Diver Certification Board of Canada (DCBC) to conduct commercial diver medicals in Canada. This 40-h course has been accredited for 35 MAINPRO+ CME credits by the College of Family Physicians of Canada. The registration portal will open on January 15. Contact Dr. Debbie Pestell (drdeb1@ns.sympatico.ca; 902-225-8214) or visit: https://underseamedicine.ca for more information.

Divescapes Scuba Conference 2026

The Divescapes scuba conference and exhibition will be held October 16-17 at the Evario Events Centre in Edmonton, AB. The Alberta Underwater Council program includes international speakers, workshops, and trade show booths. Visit: https://www.divescapes.ca.

RECENT PUBLICATIONS

Gur I, Gur I, Gitzman M, Atal L, Matsliah Y, Zaher E, Duvdevan-Strier N, Nov Y. Comparative effectiveness of varying hyperbaric oxygen protocols in the treatment of acute central retinal artery occlusion. Eye (Lond). 2026 Feb 10. doi: 10.1038/s41433-026-04298-3.

Background: The comparative effectiveness of different hyperbaric oxygen (HBO) therapy doses in the acute treatment of central retinal artery occlusion (CRAO) has not been evaluated. Methods: This retrospective cohort study aimed to compare the efficacy of an initial 2.8_{ATA} HBO session (HBO18) to the more prevalent 2.0_{ATA} protocol (HBO10). Excluded were patients with suspected inflammatory arteritis or branch retinal artery occlusion, and when HBO was medically contraindicated. Following the initial session, all patients completed two additional HBO10 sessions within 24 h. The primary outcome was the change in best corrected visual acuity (ΔBCVA) within 24±4 h. Safety outcomes included neurological events suggestive of central oxygen toxicity and barotrauma-related symptoms. Results: Improvement in ΔBCVA was significantly greater in the HBO18 group (median 0.62

LogMAR, mean -0.81±0.73) compared with the HBO10 group (median 0.22 LogMAR, mean -0.34±0.40, p<0.001). Adverse events were similar in incidence between the treatment groups, with no severe occurrences necessitating the discontinuation of HBO reported. In multivariate analysis, HBO18 use was associated with a 0.5 LogMAR improvement in BCVA at 24 h (95% CI 0.3-0.7, p<0.001), with greater initial BCVA impairment and shorter time to HBO further associated with better outcomes (0.20 LogMAR, 95% CI 0.08-0.31, p=0.001; and 0.04 LogMAR/hour, 95% CI 0.02-0.04, p=0.01, respectively). Conclusions: HBO18 as the initial therapy for CRAO seems to be associated with better short-term improvement in BCVA, compared with HBO10.

Hammad AF, Erkaya M, Hull TL, Floruta C, Spivak AR, Kanters A, Duraes LC, Valente MA, Holubar SD, Steele SR, Liska D, Lavryk O. Impact of hyperbaric oxygen therapy on complex perineal fistula healing. Colorectal Dis. 2026 Mar;28(3):e70398. doi: 10.1111/codi.70398. PMID: 41736208.

Background: Complex perineal fistulas frequently recur after surgery. Hyperbaric oxygen therapy (HBOT) augments tissue oxygenation and may enhance healing. Methods: In this retrospective matched cohort study, we reviewed 53 consecutive patients who received HBOT during repair of perianal, rectovaginal, or pouch-vaginal fistulas (2012-2024). Each was matched 1:3 to controls treated without HBOT by age, sex, body mass index, and fistula type. Demographics, operative history, healing, recurrence and stoma reversal were compared. Healing was defined as complete clinical closure confirmed at examination. Kaplan-Meier (KM) curves assessed time-to-fistula recurrence. Results: HBOT patients had longer median fistula duration than controls (2.7 vs. 1.5 years, p< .001), higher diversion rates (89% vs. 47%, p<0.001), and were more likely to have undergone more than two prior surgeries (70% vs. 34%, p=0.001). At 6 months follow-up, 45 (84.9%) patients in the HBOT group achieved fistula healing compared with 122 (76.3%) patients in the control group (p=0.18). After a median follow-up of 1.4 and 2.7 years for HBOT and non-HBOT groups (p=0.55), respectively, 4 (9%) HBOT patients and 20 (16.4%) controls developed fistula recurrence (p=0.38). The Kaplan-Meier estimated recurrence-free survival of healed fistulas was numerically higher with HBOT at 6, 12 and 18 months: 83%, 78% and 74% versus 75%, 68% and 65% (p=0.20). After stoma reversal, recurrence was lower with HBOT 5.9% versus 26.5% (log rank p=0.035). Among patients with three or more repairs (n=90), healing at last follow-up was 85% after HBOT versus 66% in controls (p=0.04). Conclusion: HBOT was associated with lower recurrence after stoma reversal and with more durable healing in fistulas that had already failed multiple prior repairs, without changing stoma reversal rates. These data suggest that HBOT may be a useful adjunct in the reconstructive strategy for complex recurrent perineal fistulas.

Leite CBG, Meirelles D, Morimoto LR, Ormond Filho AG, Cavalheiro CM, Leite MS, D'Elia CO, Demange MK. Effect of hyperbaric oxygen therapy on early MRI-based graft healing following ACL reconstruction with hamstring autografts. Orthop J Sports Med. 2026 Feb 17;14(2):23259671251413600. doi: 10.1177/23259671251413600. eCollection 2026 Feb.

Background: Anterior cruciate ligament reconstruction (ACLR) requires optimal graft healing for successful outcomes. Magnetic resonance imaging (MRI) is widely used to monitor graft maturation, with lower graft signal intensity suggesting better tissue organization and advanced healing. Hyperbaric oxygen therapy (HBOT) has shown promise in enhancing healing, but its effect on anterior cruciate ligament graft maturation in humans remains unclear. Purpose: To evaluate the impact of adjuvant HBOT on graft maturation and integration in patients undergoing ACLR, using 4-month postoperative MRI. Study design: Cohort study; Level of evidence, 3. Methods: All patients who underwent primary anatomic ACLR with hamstring autografts and adjuvant HBOT were identified and matched 1:1 by sex and age (<25, 25-39, 40-54, and >55 years) with controls who did not receive HBOT. MRI was performed at 4 months postoperatively. Graft signal-to-noise quotient (SNQ) was measured to quantify graft maturation and analyzed using the Mann-Whitney U test; bone marrow edema at the graft-bone tunnel interface (graded as absent, mild, or accentuated) was used to infer graft integration and analyzed using the Fisher exact test. Results: In total, 52 patients (26 HBOT, 26 controls; mean age 37.0±13.5 years; 61.5% male) were included. Patients receiving HBOT exhibited significantly lower graft SNQ compared to controls (median difference, 83.9; P=0.031), indicating improved graft maturation. Bone marrow edema at the graft-bone tunnel interface was also lower in the HBOT group (P=0.029), suggesting enhanced graft integration. Conclusion: In this pilot study, adjuvant HBOT following ACLR was associated with significantly improved signs of graft maturation and integration, as evidenced by lower graft signal intensity and interface signal on MRI at 4 months, suggesting accelerated early healing. These findings may help refine strategies to enhance early graft incorporation and support the development of rehabilitation protocols that optimize postoperative outcomes for patients undergoing ACLR.

Mulder E, Löfquist I, Schagatay F, Sieber A, Schagatay E. Hypoxic blackout in dynamic apnea: a case report. J Physiol Sci. 2026 Jan 26;76(1):100060. doi: 10.1016/j.jphyss.2026.100060. Online ahead of print.

Blackout (BO) in breath-hold diving is attributed to cerebral hypoxia, yet direct observations are rare. We continuously recorded arterial oxygen saturation (S_pO_2)

and heart rate (HR) in 11 trained freedivers (5 females) performing two dynamic apneas (75 m, 100 m) using a waterproof forehead oximeter. One diver experienced BO at the end of a 100 m dive (S_pO_2 51 %), recovering within 5 s. Group S_pO_2 fell from 98±1 % to 77±9 % (75 m) and 68±9 % (100 m; range 51-83 %), while mean HR declined from 83±12 to 43±8 and 40±4bpm, respectively. No arrhythmias were detected. Within-diver S_pO_2 nadirs were consistent between distances (r=0.93), whereas HR nadirs were not (r=0.40). This case confirms BO can occur at S_pO_2 values around 50%, even in the absence of arrhythmia. The BO diver consistently showed the lowest S_pO_2, indicating profound hypoxemia as the most likely contributing factor. Findings support individualized risk screening based on early desaturation patterns in submaximal dives.

Nikolić D, Pasternak J, Manojlović V, Budinski S, Nikolić MB, Batinić N. Hyperbaric oxygen therapy for chronic venous leg ulcers: a prospective randomised controlled trial. Int Wound J. 2026 Mar;23(3):e70856. doi: 10.1111/iwj.70856.

Chronic venous leg ulcers (CVLUs) affect 1-3% of adults. Standard compression therapy achieves healing in only 40-70% of cases at 24 weeks. Evidence for hyperbaric oxygen (HBO) therapy remains controversial, with limited sham-controlled trials. To evaluate whether adjunctive HBO improves healing of refractory CVLUs compared to standard care alone. Single-centre, open-label randomised trial of 80 adults with CVLUs that persisted >3 months despite standard care (defined as <30% area reduction after 4 weeks of compression therapy). All consecutive eligible patients were randomised to HBO (20 sessions at 2.4 ATA, 90 min) plus standard care (n=40) or standard care alone (n=40). Primary outcome: percentage ulcer area reduction at day 30. Blinded assessors measured wounds, though participants knew their treatment allocation. HBO group had greater area reduction (62.1±22.1% vs. 41.7±21.5%; mean difference 20.4%, 95% CI: 10.1-30.7, $p<0.001$; Cohen's d = 0.95). Complete healing at 90 days occurred in 62.5% vs. 30.0% (NNT=3). T_cPO_2 increased from 26.1±6.3 to 150.3±45.6 mmHg in HBO group ($p<0.001$). Pain decreased more with HBO (ΔVAS -5.0 vs. -1.5, $p<0.001$). Three patients (7.5%) had mild ear barotrauma that resolved spontaneously. Main limitations were lack of sham control and 90-day follow-up. In this trial, adjunctive HBO was associated with faster short-term healing of refractory venous ulcers <20 cm^2. However, the open-label design and single-centre setting limit confidence in these findings. Sham-controlled multicentre trials with longer follow-up are needed before recommending routine use.

Sugimura T, Tsuchiya N, Chinen T, Nishie A, Umemura T. Intramedullary gas detected on computed tomography in cases of decompression sickness: a case series. Cureus. 2026 Jan 20;18(1):e101936. doi: 10.7759/cureus.101936. PMID: 41728460; PMCID: PMC12920035.

Decompression sickness (DCS) is caused by nitrogen gas bubbles in the blood that lead to bubble embolization and tissue compression. Intramedullary gas bubbles may also be observed; however, their clinical significance remains unclear. Herein, we describe our experiences with three cases that experienced DCS in which intramedullary gas bubbles were incidentally discovered on computed tomography (CT) performed before treatment. Case 1 involved a 28-year-old male who had repeatedly dived to 30 m and surfaced. After diving, the patient experienced pain in the left lower extremity. CT revealed bubbles in the right atrium, hip joint, and humeral marrow cavity. Case 2 was a 55-year-old male who had dived for 25 min to a maximum depth of 42 m. Thirty minutes after diving, the patient experienced nausea and thigh pain. CT revealed bubbles in the brachiocephalic vein, pulmonary artery, femoral vein, intrahepatic portal vein, and the femoral bone marrow cavity. Case 3 was a 52-year-old female who dived to 50 m before abruptly surfacing. Subsequently, the patient experienced dizziness and nausea. CT revealed bubbles in the mediastinum, intrahepatic portal vein, femoral vein, and brachial bone marrow cavity. These findings demonstrate that gas bubbles may be observed within the bone marrow on CT scans of patients with mild cases of DCS.

CUHMA-ACMHS is the Canadian voice for the advancement of hyperbaric and diving medicine throughout our country and beyond. Our activities include continuous medical education for physicians, nurses, respiratory therapists and anyone involved in the fields of hyperbaric and diving medicine. We are also promoting dissemination of clinical research, publishing position statements, liaising with related professional associations and government agencies. Our main goal is advocating on behalf of our patients. Our vision is to be the reference for the development and delivery of hyperbaric and diving medicine in Canada and beyond. Our mission is to promote excellence in hyperbaric and diving medicine through leadership in education, promotion of best practices and advocacy for our patients. Our values are excellence, leadership, collaboration, communication, and integrity.

Canadian Undersea and Hyperbaric Medical Association

898 Sigma Ct
Ottawa, ON K1C 7E7
info@cuhma.ca https://cuhma.ca

Editor: Neal W. Pollock, PhD - neal.pollock@kin.ulaval.ca